

PATENT SPECIFICATION

673,225

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COMPLETE SPECIFICATION.

Improvements relating to Lock Mechanism for Vehicle Doors.

We, HALLAM, SLEIGH & CHESTON LIMITED, a Company registered under the laws of Great Britain, of Widney Works, Bagot Street, Birmingham, 4, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to locks for the doors of vehicles, particularly motor vehicles, such locks being of that kind which comprise a latch element in the form of an angularly-movable forked or other arm carried by, and disposed outside, a lock casing adapted to be fixed to the door, and a pin or abutment member adapted to be secured, such as by an attachment plate, to a relatively fixed part, such as to the vehicle body, the said arm and the pin or abutment part co-operating to hold the door closed. The co-operation of the arm with the pin or abutment part is such as to prevent movement, or substantial movement, of the door in the plane of its hinge axis in one direction, and the object of the present invention is to provide simple and effective means for preventing the door, when fastened, from movement, or from substantial movement, in the plane of its hinge axis in the opposite direction.

According to the invention, a vehicle door lock adapted to be secured to an edge of a vehicle door, and having an angularly-movable latch element with a striker-pin or abutment adapted to be secured to a relatively fixed part of the vehicle, so as to co-operate with the latch element to hold the door closed and to prevent its movement in one direction in a plane of the hinge axis, is characterised by the provision of means for preventing movement of the door in a plane of the hinge axis in an opposite direction, such means comprising a projecting

part or projecting ledge on the outer face of the lock casing and a wedge element adapted to be mounted on the relatively fixed part carrying the pin or abutment, so that the wedge element engages the projecting part or projecting ledge when the door is closed.

Figure 1 of the accompanying drawings shows a front view of a vehicle door lock of the kind referred to provided with a projecting ledge on the lock casing, in accordance with this invention, for co-operation with a wedge member, the latter and a striker-pin for operating the latch element being shown, in section, in their disengaged positions.

Figure 2 is a similar view showing the latch element and ledge in engagement respectively with the striker-pin and ledge, in the positions they assume when the door is closed.

Figure 3 is an edge view of the lock.

Figure 4 is an edge view of the plate carrying the striker-pin and wedge member.

Referring to the drawings, the lock comprises an angularly-movable arm or latch element 1 carried by a spindle 2 projecting through the lock casing 3, the latch element being mounted outside the wall 4 of the casing which is adapted to be secured to an edge of a vehicle door 5. The latch element 1 is forked at one end, the recess 6 between the branches of the fork being presented downwards, as shown in Figure 2, when the door is in its fastened position. The latch element 1 is adapted to be secured in its door-holding position, and to be released when required, by any suitable means, such as by the means described in the Specification of our Patent No. 649,814, the recess 6 in the latch element, when the latter is in its door-holding position, engaging a pin 7 on the relatively fixed door pillar or vehicle body, also as described in our aforesaid Specification and the pin 7 serv-

[Price 2s. 8d.]

ing to move the arm or latch 1 angularly during the closing of the door. The spindle 2 carrying the angularly-movable latch arm 1 passes through the front wall 4 of the lock casing, and is fixed to a locking element (not shown) formed with notches or ratchet teeth, whilst surrounding this spindle 2 and fixed to the outer face of the said front wall 4, such as by spot welding, is a metal plate 8. This plate 8, which is formed with a hole to receive the spindle 2, has its upper part turned down outwardly to provide a narrow ledge 9, the opposite ends 9^a of which are bent down and shaped as shown. The inner edges of these bent-down portions 9^a seat themselves against the main portion of the plate 8 to which they may be secured by welding, so that the ledge 9 is firmly supported and is effectively prevented from moving down from a horizontal position at right-angles to the plate 8, and to the outer wall 4 of the lock casing, the ledge 9 being thus prevented from coming into contact with the angularly-movable arm 1.

The pin 7 which co-operates with the recess 6 in the arm when the door is closed is fixed to an attachment plate 10 adapted to be secured to the fixed door pillar or vehicle body, and also carried by this attachment plate 10 is a sliding wedge 11, the latter being inverted and disposed some distance above the pin 7 so that it may engage, and slide over, the top face of the ledge 9 during the closing of the door, the ledge 9 being preferably slightly inclined to the horizontal. The said wedge 11 comprises a metal block with an inclined downwardly-presented face 11^a and slidably mounted within an inverted guide channel 12 secured to, or integral with, the upper portion of the plate 10, the wedge being retained in place within the guide channel 12 by a rod 13 and being recessed to receive the one end of a coiled compression spring 14 located within the channel, the spring 14 serving the press the wedge outwards towards the one end of the channel 12.

During the closing of the vehicle door the pin 7 carried by the attachment plate 10 engages the recess 6 in the latch element 1 and moves the latter angularly into, or towards, its door-holding position, and when the door is nearly closed the inclined lower face 11^a of the underside of the smaller end of the wedge 11 engages over the lower end of the ledge 9 on the lock casing, the wedge 11 being forced back, during this action, against its spring 14. The arrangement is such that when the door is fully closed the wedge 11 will have been forced into close engagement with the ledge 9, as shown in Figure 2, in such a manner that the closed door will be prevented from moving upwards in the plane of its hinge axis. At the same time, the engagement of the pin 7 in the

recess 6 in the arm or latch element 1 prevents the door from moving downwards in the plane of its hinge axis. By arranging the wedge 11 to engage the ledge 9, which is fixed relatively to the arm or latch element the wedge does not exert any direct pressure on the latter, since the ledge 9 is separated from the said latch element by a slight clearance.

The wedge may be slidably mounted in any other suitable way, and instead of a ledge, such as 9, being provided the lock casing may carry a projection of any suitable form for co-operating with the wedge, provided the latter does not exert any direct pressure on the angularly-movable arm or latching element 1. The latter may be without a recess if desired, and may co-operate with a recessed abutment part on the door pillar instead of with a pin on the latter.

What we claim is:—

1. A vehicle door lock adapted to be secured to an edge of a vehicle door, and having an angularly-movable latch element in combination with a striker-pin or abutment adapted to be secured to a relatively fixed part of the vehicle, so as to co-operate with the latch element to hold the door closed and to prevent its movement in one direction in a plane of the hinge axis, characterised by the provision of means for preventing movement of the door in a plane of the hinge axis in an opposite direction, such means comprising a projecting part or projecting ledge on the outer face of the lock casing and a wedge element adapted to be mounted on the relatively fixed part carrying the pin or abutment, so that the wedge element engages the projecting part or projecting ledge when the door is closed.

2. A vehicle door lock and striker-pin, as claimed in Claim 1, wherein the pivoted latch element is on the outside of the lock casing and is of a forked formation, having a gap at one end, the projecting part or ledge on the outer face of the lock casing being disposed opposite, and adjacent, the ungapped end of the latch element, so that when the door is closed the said projecting part or ledge lies between the said ungapped end and the wedge.

3. A vehicle door lock and co-operating striker-pin and wedge element as herein described with reference to the accompanying drawings.

Dated this 31st day of January, 1951.

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Agents for Applicants.

PROVISIONAL SPECIFICATION.

Improvements relating to Lock Mechanism for Vehicle Doors.

We, HALLAM, SLEIGH & CHESTON LIMITED, a Company registered under the laws of Great Britain, of Widney Works, Bagot Street, Birmingham, 4, do hereby declare the nature of this invention to be described in the following statement:—

This invention relates to lock mechanism for the doors of vehicles, particularly motor vehicles, such lock mechanism being of that kind which comprises a latch element in the form of an angularly-movable forked or other arm carried by, and disposed outside, a lock casing adapted to be fixed to the door, and a pin or abutment member adapted to be secured, such as by an attachment plate, to a relatively fixed part, such as to the vehicle body, the said arm and the pin or abutment part co-operating to hold the door closed. The co-operation of the arm with the pin or abutment part is such as to prevent movement, or substantial movement, of the door in the plane of its hinge axis in one direction, and the object of the present invention is to provide simple and effective means for preventing the door, when fastened, from movement, or from substantial movement, in the plane of its hinge-axis in the opposite direction.

According to the invention, in lock mechanism of the kind referred to, a wedge element is provided which is secured, or is adapted to be secured, to the part which carries the pin or abutment member, and the lock casing is provided with a projection, fixed in relation to the angularly-movable arm and separated therefrom, the said projection and wedge co-operating, when the door is closed to prevent movement of the door in a plane of its hinge axis in one direction, whilst movement, or substantial movement, in the said plane in the other direction is prevented by the co-operation of the arm with the associated pin or abutment member. The projection on the lock casing may be in the form of a narrow ledge, and the wedge element may be slidable and spring influenced, whilst the said ledge may be bent from a metal plate secured to the lock casing, the opposite ends of the ledge portion being bent down to provide supports.

Thus, in carrying out the invention, the lock mechanism comprises an angularly-movable forked arm carried by a lock casing, and mounted upon the outside of the latter, the said casing being adapted to be secured to an edge of a vehicle door, with the recess between the branches of the forked arm presented downwards when the door is in its

fastened position. The arm is adapted to be secured in its door-holding position, and to be released when required, by any suitable means, such as by the means described in the Specification of our Patent Application No. 24542/48, the recess in the arm, when the latter is in its door-holding position, engaging a pin on the relatively fixed door pillar or vehicle body, also as described in our aforesaid Specification, and the pin serving to move the arm angularly during the closing of the door. The angularly-movable latch arm is fixed to a spindle passing through the front wall of the lock casing, the spindle being fixed in turn to a locking element formed with notches or ratchet teeth, whilst surrounding this spindle and fixed to the outer face of the front wall of the lock casing, such as by spot welding, rivets, or the like, is a metal plate. This plate, which is formed with a hole to receive the spindle, has its upper part turned down outwardly to provide a narrow ledge, and the opposite ends of the turned-down metal strip which forms the latter are bent down at an angle to the main part of the strip or ledge. The inner edges of these bent-down portions seat themselves against the outer face of the unbent portion of the plate to which they may be secured by welding or by other means, so that they thus form supports for the ledge and prevent the latter from moving down from a horizontal position at right-angles to the plate and outer wall of the lock casing, and they serve to prevent the ledge from coming into contact with the the angularly-movable arm.

The pin which co-operates with the recess in the arm when the door is closed is fixed to an attachment plate adapted to be secured to the fixed door pillar or vehicle body, and also carried by this attachment plate is a sliding wedge, the latter being inverted and disposed some distance above the pin so that it may engage, and slide over, the top face of the ledge during the closing of the door, the ledge being preferably slightly inclined to the horizontal. The said wedge may comprise a metal block with an inclined downwardly-presented face and slidably mounted within an inverted guide channel in a part secured to, or integral with, the upper portion of the pin-carrying attachment plate, the block being retained in place within the guide channel by a rod or by other means, and being recessed to receive the one end of a coiled compression spring located within the

channel, the spring serving to press the wedge outwards towards the one end of the channel.

5 During the closing of the vehicle door the pin carried by the lower part of the attachment plate engages the recess in the arm and moves the latter angularly into, or towards, its door-holding position, and when the door is nearly closed the inclined lower face of the underside of the smaller end of the wedge engages over the lower end of the ledge on the lock casing, the wedge being forced back, during this action, against its spring. The arrangement is such that when 10 the door is fully closed the wedge will have been forced into close engagement with the major portion of the ledge in such a manner that the closed door will be prevented from moving upwards in the plane of its hinge axis. At the same time, the engagement of 15 the pin in the recess in the arm prevents the door from moving downwards in the

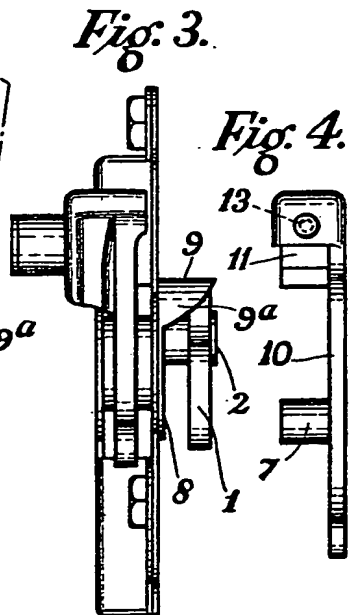
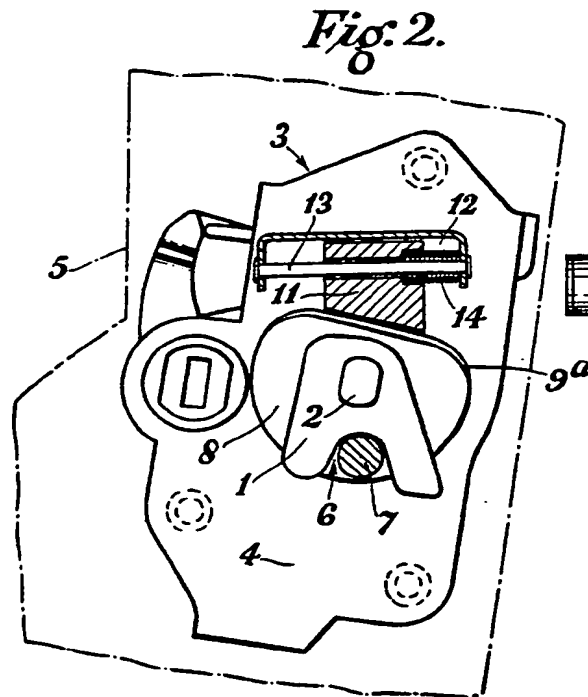
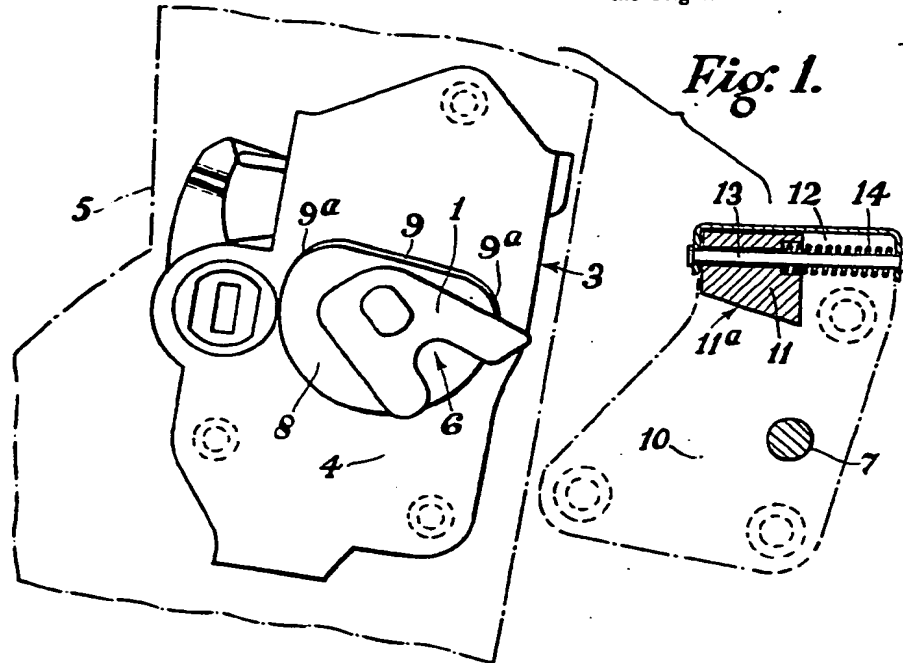
plane of its hinge axis. By arranging the wedge to engage the ledge, which is fixed relatively to the arm, the wedge does not exert any pressure on the latter, since the ledge is separated from the arm by a slight clearance. 25

The wedge may be slidably mounted in any other suitable way, and instead of a ledge being provided the lock casing may carry a pin or projection of any suitable form for co-operating with the wedge, provided the latter does not exert any pressure on the angularly-movable arm. The arm 30 may be without a recess if desired, and may co-operate with a recessed abutment part on the door pillar instead of with a pin on the latter. 35

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